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(12) **United States Patent**  
**Hiroki et al.**

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(54) **THIN FILM FORMATION APPARATUS AND METHOD OF MANUFACTURING SELF-LIGHT-EMITTING DEVICE USING THIN FILM FORMATION APPARATUS**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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**B05D 5/06** (2006.01)

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427/427.1; 427/600; 118/300

(58) **Field of Classification Search** ..... 427/66,  
427/68, 256, 421.1, 422, 427.1  
See application file for complete search history.

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(57) **ABSTRACT**

A means of effectively applying an organic EL material application liquid with good application liquid cut-off is provided. A heater and an ultrasonic oscillator are formed in a thin film formation apparatus when applying the application liquid, and heat and ultrasonic oscillations are imparted to the application liquid. Defective application liquid cut-off and liquid clogging can thus be resolved.

**34 Claims, 19 Drawing Sheets**

